IN THE CLAIMS:

1. (Currently Amended) A rotary tool for drilling into a soil formation from its surface, controllably injecting water and dry binder at known depths below the surface of said formation, and mixing said soil, water and dry binder to form an in-situ piling, said tool comprising:

a rotary shaft having a central axis of rotation adapted to be driven bi-directionally around said axis, and bi-directionally along said axis;

a vane on and extending radially from said shaft to be rotated around and moved axially by said shaft, said vane being so disposed and arranged as to move through the formation along a helical path to drill into said formation, to stir the material of the formation, and ultimately to mix the material of the formation with water and dry binder;

a water injector and a binder injector carried by said tool, each injector having a respective axis of emission of water or of dry binder, said axes of emission being directed away from said tool into said formation at a respective location along said central axis;

said injectors being so disposed and arranged relative to one another that the material of their emissions will during a limited number of revolutions of said shaft, encounter one another, there to be mixed as a pre-determined ratio of water and

of dry binder, said water including water emitted from the water injector and water which may have already been present at that location;

said injectors being set in said shaft with their axes of emission substantially normal to said central axis, and located along said central axis such that the emission of one of them will, within a limited number or rotations of the shaft encounter and mix with the other in a temporally suitable time related to the curing of the binder and drainage of the water;

there being a pair of said water injectors and at least one of said binder injectors set in said shaft, with said binder injector located axially between said water injectors.

Claim 2 (cancelled)

Claim 3 (cancelled)

Claim 4 (cancelled)

Claim 5 (cancelled)

Claim 6 (cancelled)

Claim 7 (cancelled)

Claim 8 (cancelled)

Claim 9 (cancelled)

10. (Previously Presented) In combination:

a rotary tool for drilling into a soil formation from its surface, controllably injecting water and dry binder at known depths below the surface of said formation, and mixing said soil, water and dry binder to form an in-situ piling, said tool comprising:

a rotary shaft having a central axis of rotation adapted to be driven bi-directionally around said axis, and bi-directionally along said axis;

a vane on and extending radially from said shaft to be rotated around and moved axially by said shaft, said vane being so disposed and arranged as to move through the formation along a helical path to drill into said formation, to stir the material of the formation, and ultimately to mix the material of the formation with water and dry binder;

a water injector and a binder injector carried by said tool, each injector having a respective axis of emission of water or of dry binder, said axes of emission being directed away from said tool into said formation at a respective location along said central axis;

said injectors being so disposed and arranged relative to one another that the material of their emissions will during a limited number of revolutions of said shaft, encounter one another, there to be mixed as a pre-determined ratio of water and

of dry binder, said water including water emitted from the water injector and water which may have already been present at that location;

a control valve respective to each of said injectors, whereby the rate of supply of water and of dry binder can independently be regulated by said control valves to provide binder at a rate desired at a respective depth and water at a rate desired which with existing water already in the formation at that depth, will constitute at least sufficient water for stoichiometric reaction of the binder;

said injectors being set in said shaft with their axes of emission substantially normal to said central axis, and located along said central axis such that the emission of one of them will, within a limited number of rotations of the rotary tool encounter and mix with the other in a temporally suitable time related to the curing of the binder and drainage of the water.

Claim 11 (cancelled)

Claim 12 (cancelled)

Claim 13 (cancelled)

Claim 14 (cancelled)

Claim 15 (cancelled)

Claim 16 (cancelled)

Claim 17 (cancelled)

Claim 18 (cancelled)

Claim 19 (cancelled)

20. (Currently Amended) The method of forming an in-situ piling in a soil formation with a dry binder and sufficient water to produce a stoichiometrically correct mixture, comprising:

with a rotary tool, drilling into said formation, said tool having a rotary shaft that has a central axis of rotation and a vane for drilling into and mixing the soil, rotated around and moved axially by said shaft, said vane being so disposed and arranged as to move through the formation along a helical path to drill into said formation, to stir the material of the formation, and ultimately to mix the material of the formation with water and binder;

a water injector and a dry binder injector carried by said tool;

driving said tool axially into and out of said formation while rotating it;

at some times during axial movement of said tool, <u>simultaneously</u> discharging said water from said water injector into said soil formation along an axis of emission of said water and discharging said dry binder from said binder ~~injection~~ <u>injector</u> into said soil formation along an axis of emission of said dry binder under ~~continuous~~ control of the rate of supply of

each, both said axes of emission being ~~radially~~ directed away from said shaft tool into said soil formation at a respective location along said central axis of said shaft, so that said water and said dry binder being emitted from said water injector and from said binder injector, respectively, will during a limited number of revolutions of said shaft encounter one another to become a mixture at ~~various~~ respective depths ~~with~~ as a pre-determined ratio of water and dry binder, said ratio being responsive to requirements at the respective depth, said required water including water emitted from said water injector and water which may have already been present at that depth in said soil formation, said resulting mixture of water and binder further including material of the soil formation. ~~being temporally-made.~~

21. (Original) The method of claim 20 in which injection of binder is made during passage of said tool into said soil formation.

22. (Original) The method of claim 20 in which injection of binder is made during passage of said tool out of said soil formation.

23. (Original) The method of claim 20 in which injection of water is made during passage of said tool into said soil formation.

24. (Original) The method of claim 20 in which injection of water is made during passage of said tool out of said soil formation.

Claim 25 (cancelled)

26.(Original) The method of claim 20 in which the emission of one of said injectors is encountered in said soil formation in a temporally suitable time related to the curing of the binder and drainage of the water.

27. (Previously Presented) The method of claim 20 in which the emission of water is determined by a program responsive to data from a representative core.

28.(Original) The method of claim 20 in which the emission of water is determined by a program responsive to data relating to water content already in the soil derived from a sensor on said tool disposed at an axial location below the place of injection of said binder.

29. (Original) The method of claim 20 in which the pressure of the stream of water and of the binder in the tool is above the ambient pressure which exists in the formation.

Please add the following new claims:

30. (New) The method of claim 20 in which emission of water and binder are under continuous control.

31. (New) A method according to claim 20 in which the emission of water and binder are under continuous adjustable control.